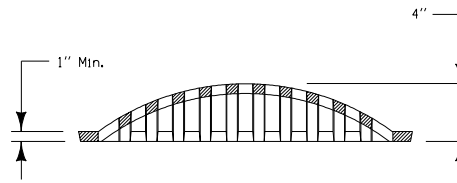
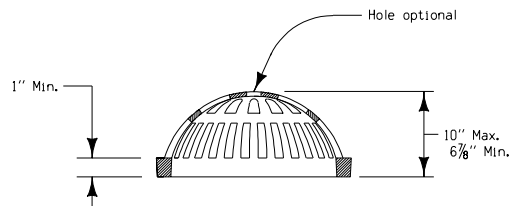
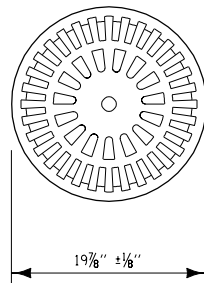


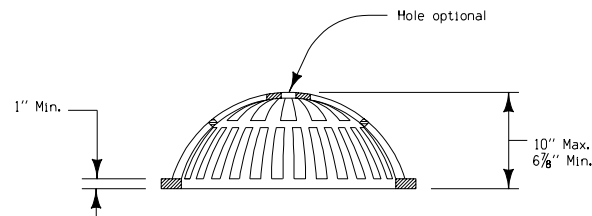
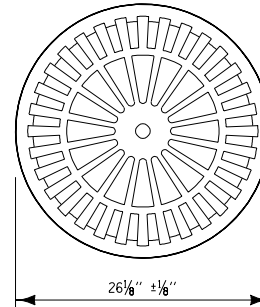
TYPE 1 GRATE  
Minimum Weight = 180 lbs.



SECTION A-A



TYPE 3A GRATE  
FOR PLACEMENT ON 18" PIPE  
Minimum Weight = 75 lbs.  
Minimum Number of Ribs = 16



TYPE 3B GRATE  
FOR PLACEMENT ON 24" PIPE  
Minimum Weight = 110 lbs.  
Minimum Number of Ribs = 20

#### GENERAL NOTES:


All castings shall be Class 30 or better gray iron castings complying with the Standard and Supplemental Specifications and shall be essentially as detailed hereon. The castings illustrated hereon are typical only. Alternate designs for similar situations may be submitted to the Engineer for approval. Minimum mass requirements will be met unless authorization is received for any such deviation. All castings subject to roadway traffic shall have a machine ground bearing surface to prevent rattling, and match-marked before delivery. The use of grinding pads is allowed as long as all dimensional requirements are met.

Finish of castings shall be smooth and free of defects as per the Standard and Supplemental Specifications. Painting of casting is not required; however, if used, paint shall be evenly applied and neither sticky nor brittle when dry.

All component parts of casting shall fit smoothly together without forcing and the finished product shall have a completely satisfactory appearance.

An identifiable trade name or mark may be imprinted on castings by the casting foundry.

Unless specified otherwise as a part of detail plans, cast iron grates and frames described hereon shall not be paid for separately, but shall be included with and considered incidental to intakes or utility accesses.

 <b>Iowa Department of Transportation</b> Project Development Division	
<b>STANDARD ROAD PLAN RA-66A</b>	
REVISION: Replaces Standard Road Plan RA-13A.	REVISION NO. New
APPROVED BY: <i>John C. Chapp</i> DESIGN METHODS ENGINEER	REVISION DATE 11-05-99 02-11-00
INTAKE GRATES TYPES 1, 3A, AND 3B	